SEQUENCE LISTING

<110> German, Michael S.
      Lin, Joseph

<120> PRODUCTION OF PANCREATIC ISLET CELLS
  AND DELIVERY OF INSULIN

<130> UCSF-129CIP

<150> 09/535,145
<151> 2000-03-24

<150> 60/128,180
<151> 1999-04-06

<160> 19

<170> FastSEQ for Windows Version 4.0

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<212> DNA
<213> Homo Sapiens

<400> 1
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gacccccaga ctcaggactt cctctatttt ctgcattttg gggtctcttg ttttgccttg    420
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gactaagggg agaaaaagtt tatcagcttc tcccagtgcc tgcacgctgt ggtagttcaa   1440
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<212> PRT
<213> Homo Sapiens

<400> 2

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            20                  25                  30
Thr Ser Ala Pro Pro Ser Pro Thr Arg Thr Arg Gly Asn Cys Ala Glu
        35                  40                  45
Ala Glu Glu Gly Gly Cys Arg Gly Ala Pro Arg Lys Leu Arg Ala Arg
    50                  55                  60
Arg Gly Gly Arg Ser Arg Pro Lys Ser Glu Leu Ala Leu Ser Lys Gln
65                  70                  75                  80
Arg Arg Ser Arg Arg Lys Lys Ala Asn Asp Arg Glu Arg Asn Arg Met
                85                  90                  95
His Asn Leu Asn Ser Ala Leu Asp Ala Leu Arg Gly Val Leu Pro Thr
            100                 105                 110
Phe Pro Asp Asp Ala Lys Leu Thr Lys Ile Glu Thr Leu Arg Phe Ala
            115                 120                 125
His Asn Tyr Ile Trp Ala Leu Thr Gln Thr Leu Arg Ile Ala Asp His
        130                 135                 140
Ser Leu Tyr Ala Leu Glu Pro Pro Ala Pro His Cys Gly Glu Leu Gly
145                 150                 155                 160
Ser Pro Gly Gly Ser Pro Gly Asp Trp Gly Ser Leu Tyr Ser Pro Val
                165                 170                 175
Ser Gln Ala Gly Ser Leu Ser Pro Ala Ala Ser Leu Glu Glu Arg Pro
            180                 185                 190
Gly Leu Leu Gly Ala Thr Ser Ser Ala Cys Leu Ser Pro Gly Ser Leu
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Ala Phe Ser Asp Phe Leu
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<210> 3
<211> 1861
<212> DNA
<213> Mus musculus

<400> 3
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- 3 -

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<210> 4
<211> 214
<212> PRT
<213> Mus musculus

<400> 4

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Thr Gln Gln Pro Phe Pro Gly Ala Ser Asp His Glu Val Leu Ser Ser
            20                  25                  30
Asn Ser Thr Pro Pro Ser Pro Thr Leu Ile Pro Arg Asp Cys Ser Glu
            35                  40                  45
Ala Glu Val Gly Asp Cys Arg Gly Thr Ser Arg Lys Leu Arg Ala Arg
        50                  55                  60
Arg Gly Gly Arg Asn Arg Pro Lys Ser Glu Leu Ala Leu Ser Lys Gln
65                  70                  75                  80
Arg Arg Ser Arg Arg Lys Lys Ala Asn Asp Arg Glu Arg Asn Arg Met
                    85                  90                  95
His Asn Leu Asn Ser Ala Leu Asp Ala Leu Arg Gly Val Leu Pro Thr
            100                 105                 110
Phe Pro Asp Asp Ala Lys Leu Thr Lys Ile Glu Thr Leu Arg Phe Ala
        115                 120                 125
His Asn Tyr Ile Trp Ala Leu Thr Gln Thr Leu Arg Ile Ala Asp His
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- 4 -

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Ser Phe Tyr Gly Pro Glu Pro Pro Val Pro Cys Gly Glu Leu Gly Ser
145                     150                    155                    160
Pro Gly Gly Gly Ser Asn Gly Asp Trp Gly Ser Ile Tyr Ser Pro Val
                165                    170                    175
Ser Gln Ala Gly Asn Leu Ser Pro Thr Ala Ser Leu Glu Glu Phe Pro
            180                    185                    190
Gly Leu Gln Val Pro Ser Ser Pro Ser Tyr Leu Leu Pro Gly Ala Leu
        195                    200                    205
Val Phe Ser Asp Phe Leu
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<213> Artificial Sequence

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<220>
<223> primer

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<220>
<223> oligonucleotide primer

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<220>
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<223> H3-2

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<220>
<223> H1

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<211> 34
<212> DNA
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<223> H2

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<223> H1P

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<223> E1

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<223> N2

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<223> N3/4

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<210> 19
<211> 75
<212> DNA
<213> Homo sapiens

<400> 19
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gtggggcttt ctttt                                                        75